

REMARKS

Applicants thank the Examiner for considering the Information Disclosure Statement filed on December 12, 2003. Furthermore, the Applicants thank the Examiner for acknowledging foreign priority under 35 U.S.C. § 119 and receipt of certified copies of the priority documents in Application No. 10/093,373. Applicants respectfully request that the Examiner indicate whether the Formal Drawings filed December 12, 2003 are accepted.

Claim Rejections 35 U.S.C. § 102(b)

The Examiner has rejected claim 34-35 and 37 under 35 U.S.C. § 102(b) as being anticipated by Lee (JP10-175124), Rockwell (US 1,431,183), Canda (1,204,127) and/or Hill (US 665,905). Applicants respectfully traverse this rejection because the references fail to disclose all of the elements as set forth in the claims.

The Examiner alleges that each of Lee, Canda and Hill show all the features and limitations of independent claim 34. However, Applicants submit that none of the aforementioned references disclose “forge-forming the wire material into a blank ball having at least one plane,” as recited in independent claim 34. In contrast, Lee, Rockwell, Canda and Hill each disclose a method of forming spherical balls, but none of these references disclose a spherical ball having at least one plane. For example, in Lee, the raw material is forged and then subsequently divided into two parts for form two semi-spheres.¹ Similarly, both Rockwell and

¹ Lee, JP 10-175124, see abstract.

Canda disclose forge forming a spherical ball, but both further include fins² or projecting³ portions formed on the spherical ball resulting from excess metal. Finally, Hill discloses forge forming an approximately spherical shape, which is subsequently polished into true spherical form.⁴

With regard to Rockwell, this reference discloses a cylindrical slug 1, which is forged into a spherical-shaped blank 2. However the opposite ends of the cylindrical slug 1 are not formed into the spherical shaped blank 2, but are left protruding from the ends. This results in a plane type portion. However, no portion of Rockwell discloses wherein a predetermined radius of curvature is forge formed at a connecting portion located between a rolling contact face and said at least one plane on said blank ball, as recited in claim 34.

Thus, because none of the applied references disclose a ball having at least one plane, wherein a predetermined radius of curvature is forge formed at a connecting portion located between a rolling contact face and said at least one plane on said blank ball, Applicants respectfully submit that independent claim 34 is patentable. Furthermore, dependent claims 35 and 37 are allowable, at least, by virtue of their dependency.

The Examiner has rejected claims 38-43 under 35 U.S.C. § 102(b) as being anticipated by Shoda et al. (JP 2001-050264; "Shoda"). Applicants respectfully traverse this rejection as follows.

² Canda, US 1,204,127, lines 10-22.

³ Rockwell, US 1,431,183, lines 57-64.

⁴ Hill, US 665,905, lines 13-20.

Applicants submit that Shoda fails to disclose “wherein each rolling element has a connecting portion that is located between the rolling contact face and one of the at least one plane and has a predetermined radius of curvature,” as recited in claim 40. The Examiner alleges that Shoda discloses a rolling element including at least one plane. Applicants respectfully disagree.

For example, figure 2 shows a rolling element, however, this rolling element lacks a plane. The Examiner seems to allege that the rolling element of figure 2 shows a plane. However, this element is actually a hollow element having an internal cylindrical surface. More specifically, Shoda reveals that rolling element 5 of figure 2 is configured such that two or more rolling elements are incorporated between the bearing washers and guided with cage 6 (shaft element) which is disposed within the hollow internal portions of the rolling elements (see Figure 1). Thus, Shoda fails to disclose a rolling element having at least one plane or having connecting portion that is located between the rolling contact face and one of the at least one plane.

Thus, Applicants respectfully submit claim 40 is patentable over Shoda for at least this reason. Further, Applicants respectfully submit that claims 41 and 43 are allowable, at least by virtue of their dependency.

Claim Rejections Under 35 U.S.C. § 103(a)

The Examiner rejected claim 10-12 and 33-37 as being unpatentable over Shoda in view of Nice (US 1,784,463). Applicants respectfully traverse this rejection.

The Examiner generally alleges that Shoda discloses a roller element and that Nice discloses a method of forming a roller element. Even if the references could be combined as the Examiner seems to allege, they fail to disclose, at least, forge forming a ball blank or a rolling

element having at least one plane. As discussed above, Shoda fails to disclose this feature.

Furthermore, Nice does not compensate for this deficiency. Nice merely discloses a method for forming a spherical balls,⁵ which are then subsequently ground into a cylindrical form by passing the balls through a centerless grinder.⁶ No portion of Nice discloses forming a ball blank or a rolling element having at least one plane, as recited in independent claims 10 and 34.

Thus, Applicants respectfully submit that claims 10 and 34 are patentable over the Examiner's attempted combination. Furthermore, claims 11-12 and 35-37 are allowable, at least by virtue of their dependency.

Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

⁵ Nice, lines 48-55.

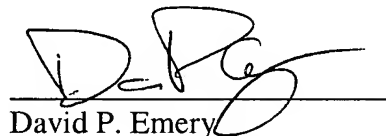
⁶ Nice, lines 80-87.

Amendment Under C.F.R. § 1.111
US Appln. 10/733,471

Atty. Docket: Q78941

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,


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